



Apex Scientific

# PRACTICAL & ATLAS OF HISTOLOGY

Part 1

By

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***Copy Right***  
**APEX Family**

## Histological sections for organelles and inclusions:

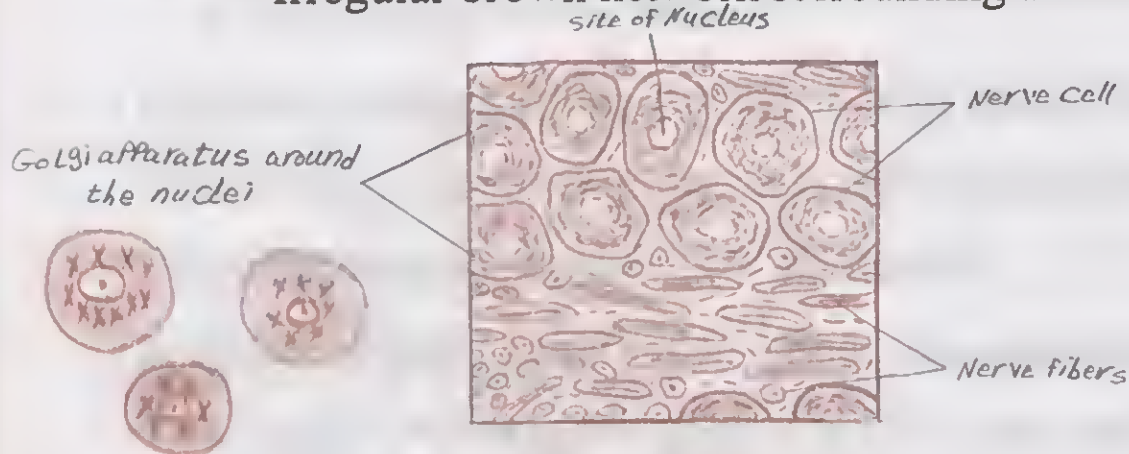
### 1- Golgi apparatus

- It concerned with the secretory activity of the cells.
- It can be demonstrated by a silver stain.

### A- Golgi apparatus in nerve cell (Ag):

#### Notice:

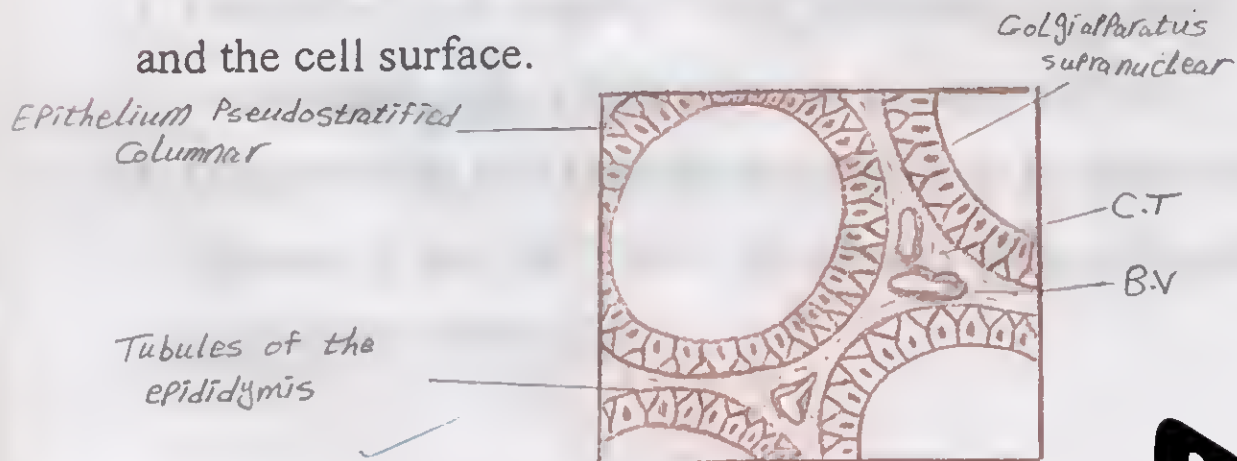
Irregular brown network surrounding the nucleus.



### B- Golgi apparatus in epididymis (Ag):

#### Notice:

Irregular brown to black network between the nucleus and the cell surface.



## 2 Nissl's Granules in nerve cell (Toluidine blue)

Ribosomes are granules of nucleoprotein which are responsible for protein synthesis.

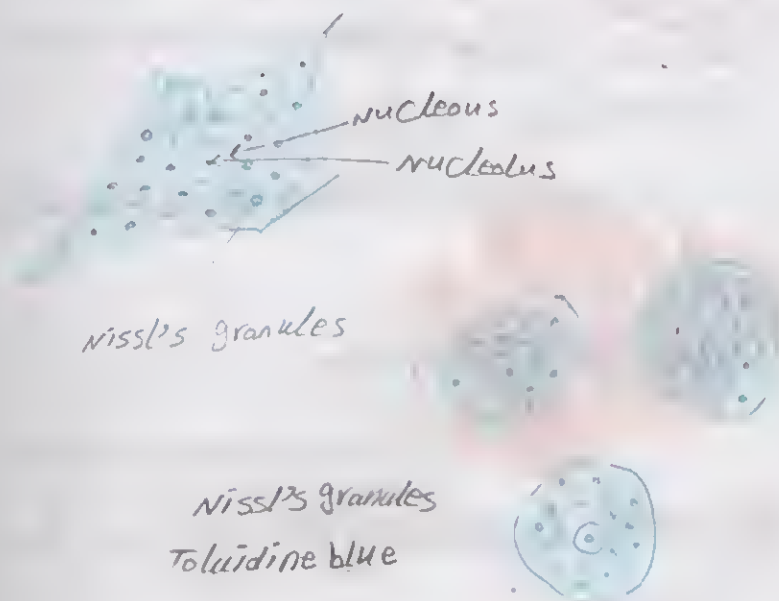
Because they are acidic, they impart on the cytoplasm its basophilia which may be:

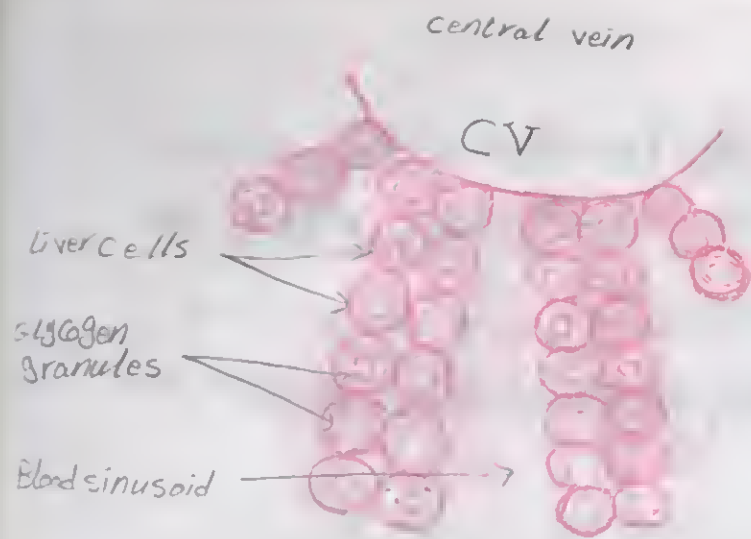
- Diffuse basophilia.
- Localized basophilia.
- Spotty basophilia → basophilic spots in the cytoplasm

(Nissl's granules of nerve cells).

Figure:

Basophilic granules scattered in the cytoplasm.



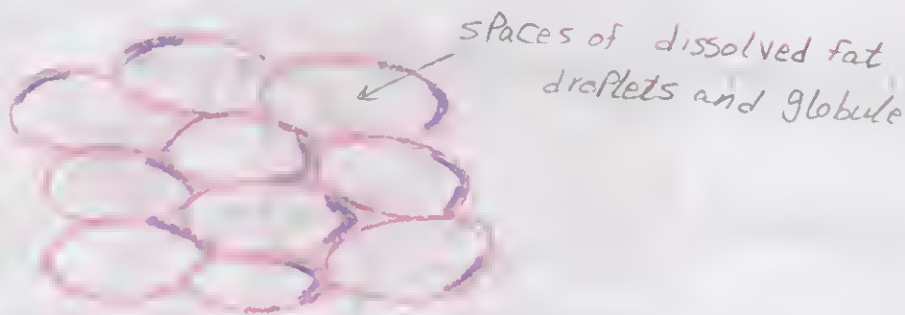


Glycogen granules in liver cells (Best's Carmine)

glycogen granules



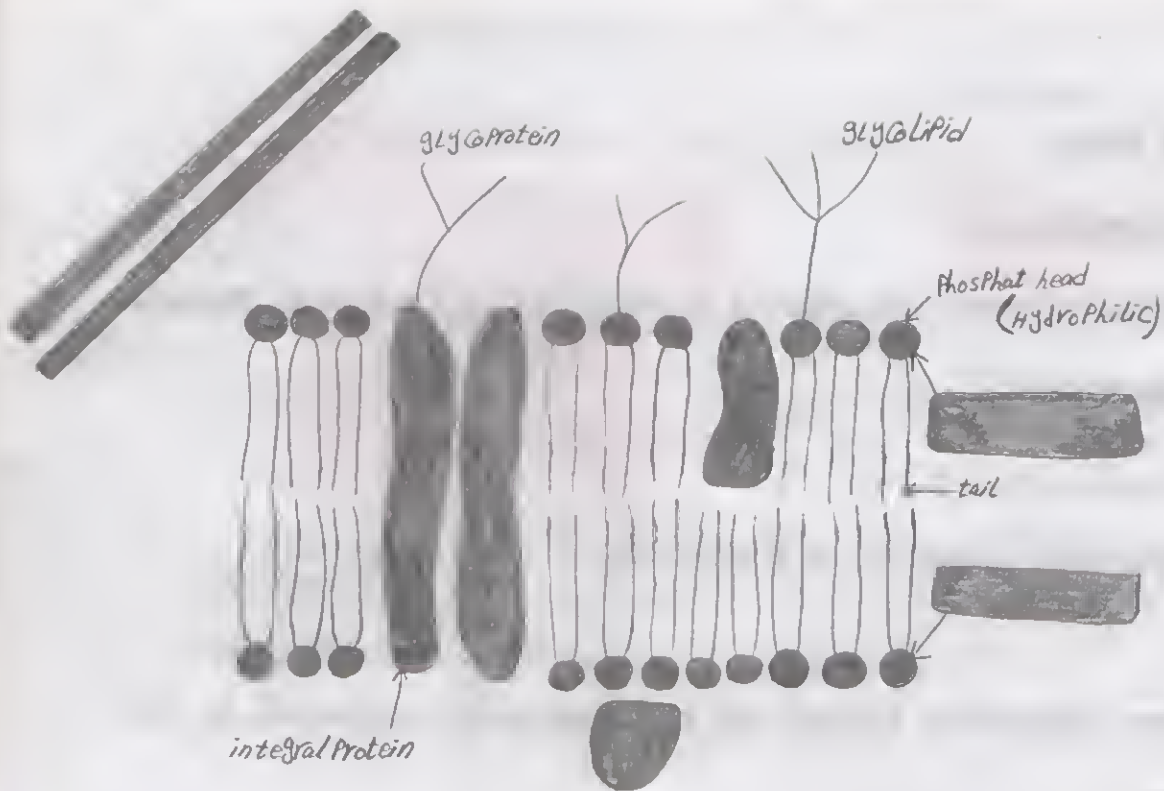
Glycogen granules in liver cells (Best's Carmine and HX)



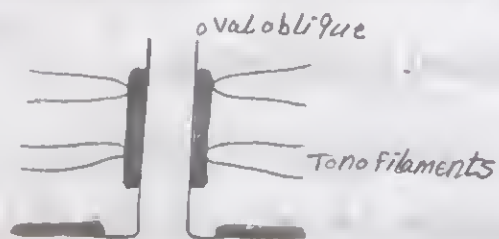
Fat cells (HX & E)



Fat cells (sudan III)



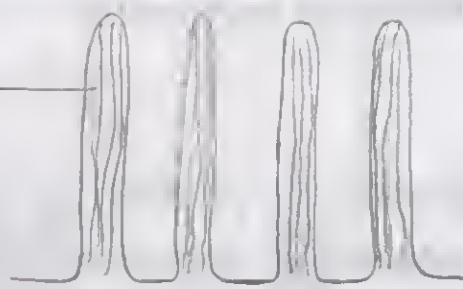
Molecular structure EM  
Cell Membrane



Desmosome



Actin Filaments



Microvilli

GERL



Mature face



Flattened vesicle (FV)



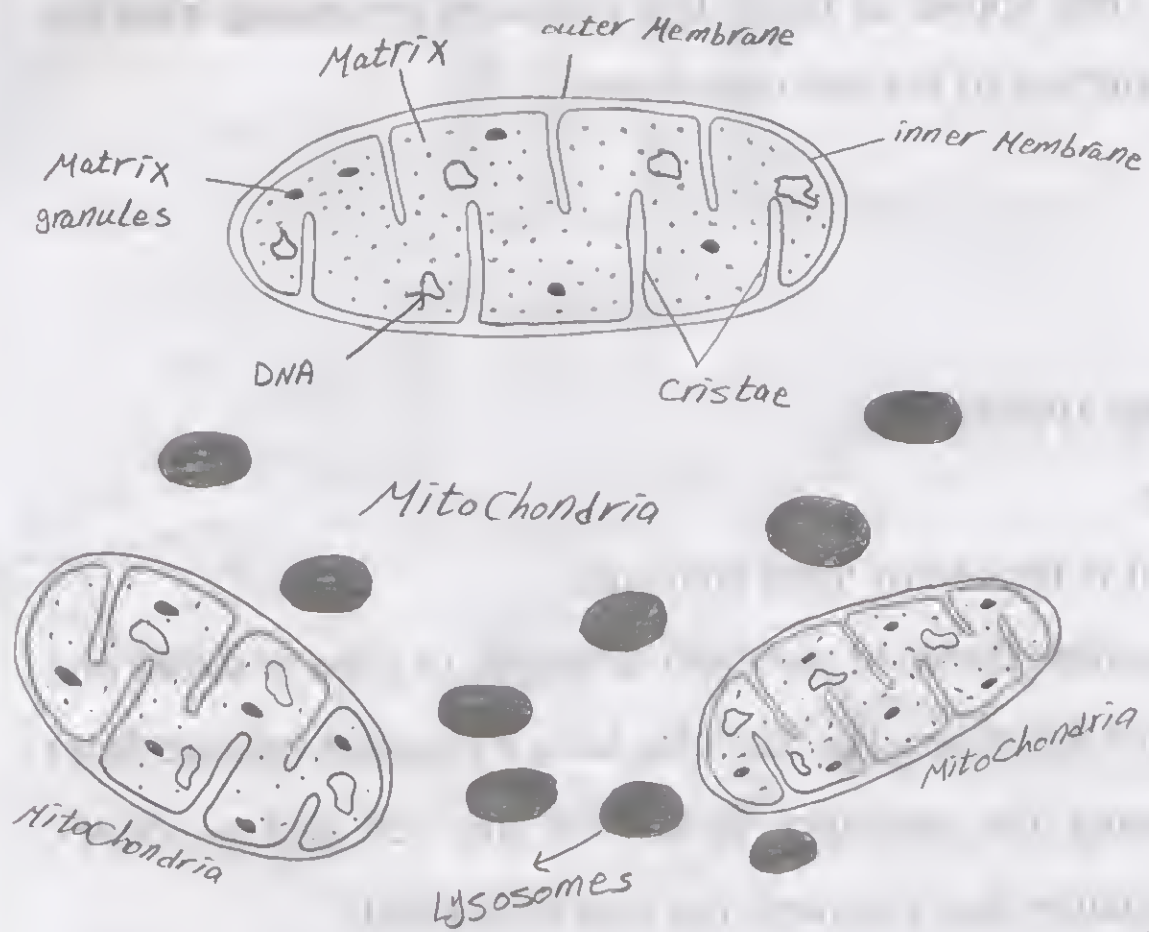
Immature

Microvesicles (MV)



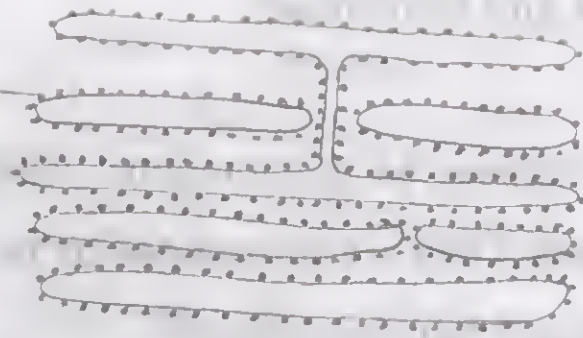
Nucleus

Golgi complex



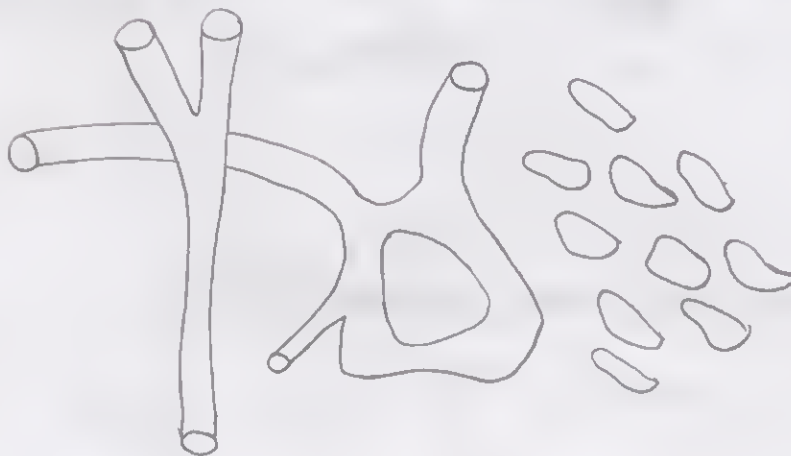
Mitochondria and Lysosomes

ribosomes

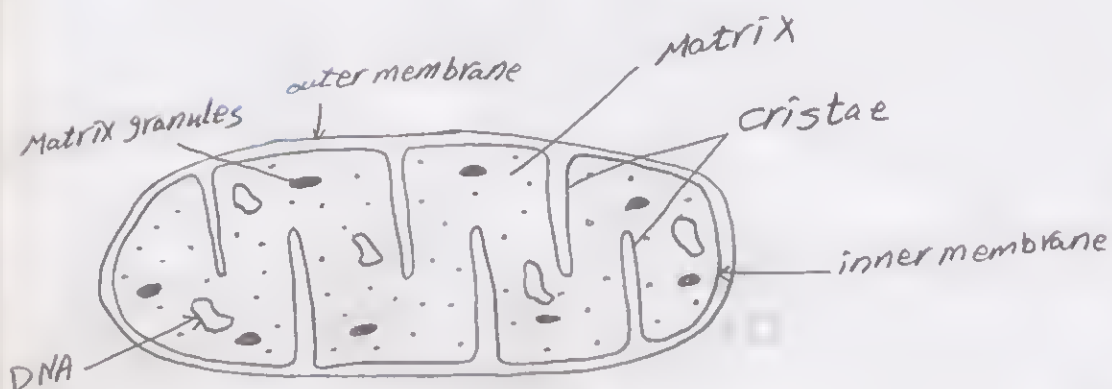


E/M

RER



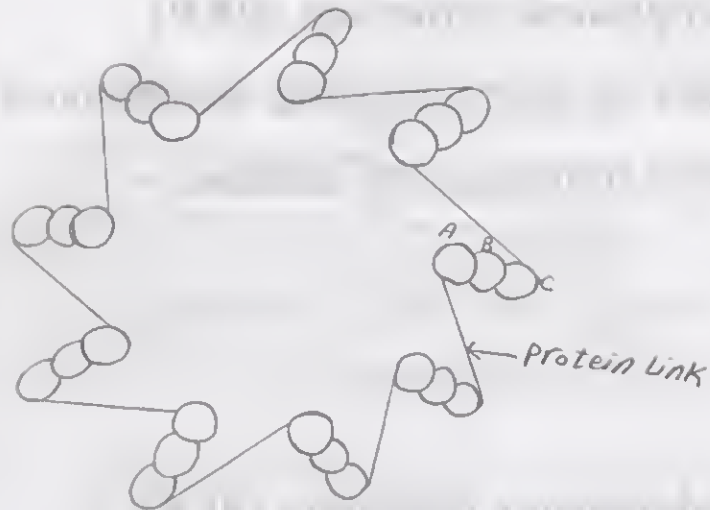
SER



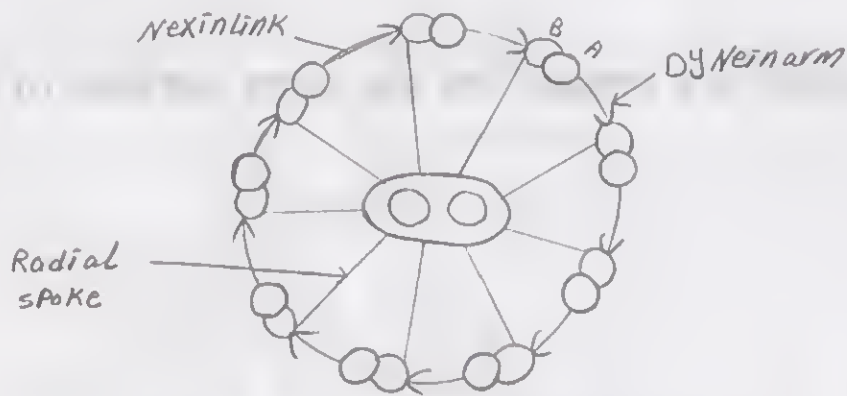
Mitochondria



## Centriole



Nine Peripheral Triplet

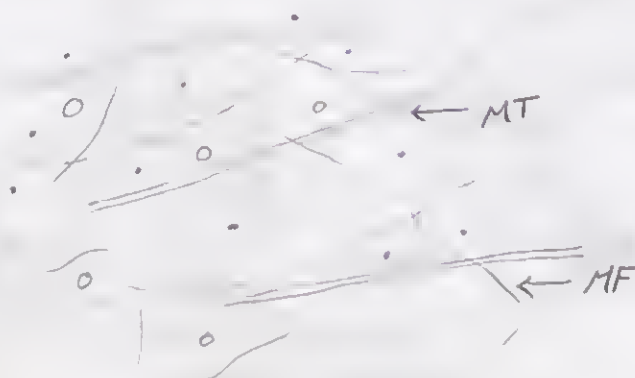


Cilia

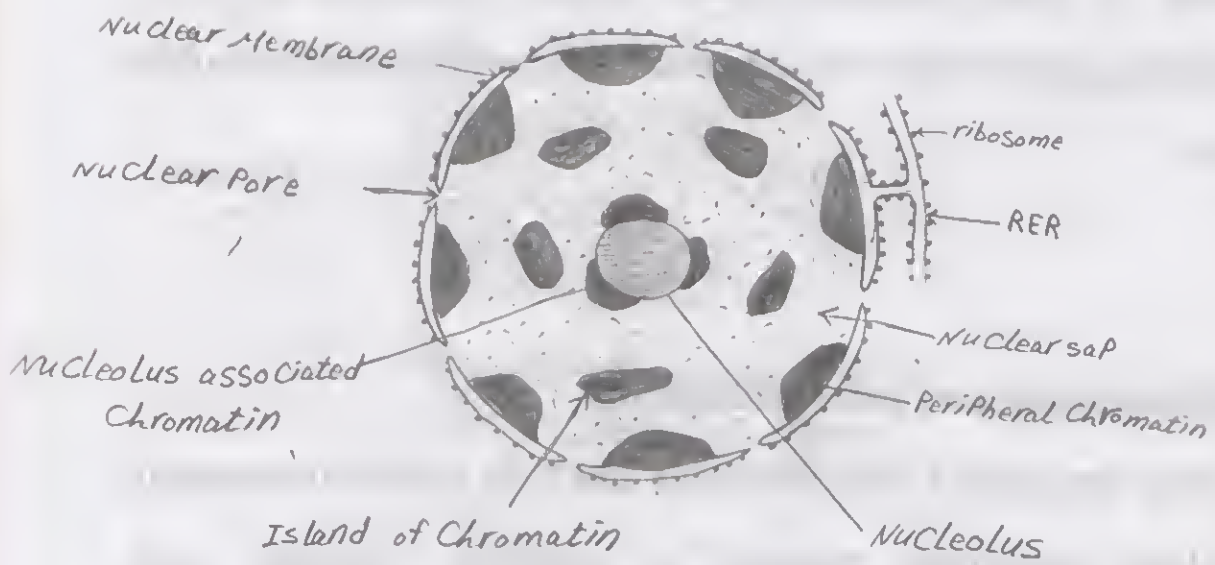
Nine Peripheral doublets  
with 2 central singlets

Microtubule

Microfilament



Microtubules  
and  
Microfilaments



Nucleus and Nucleolus

flat nucleus



simple squamous epithelium

e.g. → Bowman's capsule

central rounded nuclei



simple cuboidal epithelium

e.g. → Thyroid follicle

nonciliated

oval basal nucleus



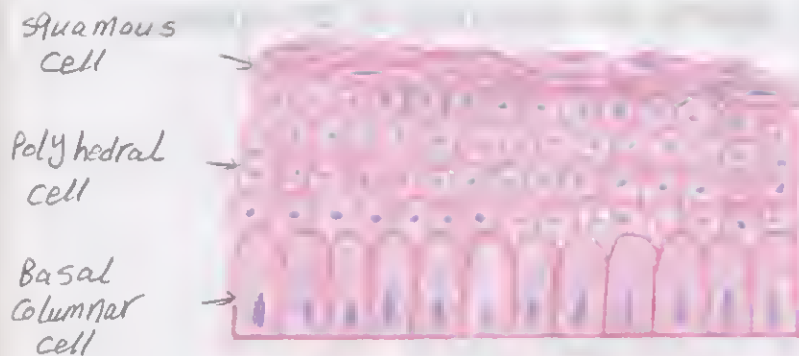
simple columnar epithelium

oval basal nucleus



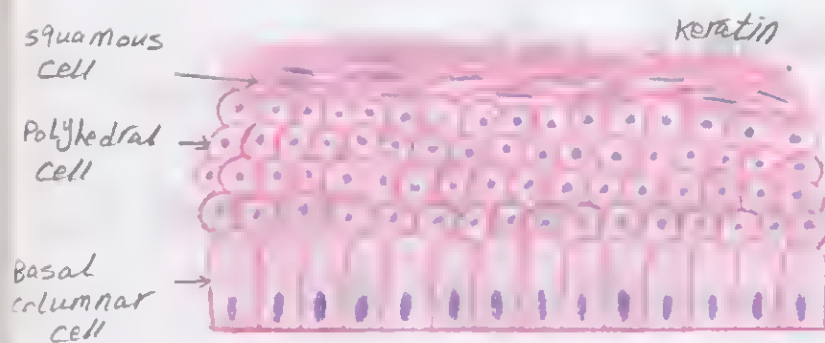
simple columnar epithelium

ciliated



stratified squamous epithelium

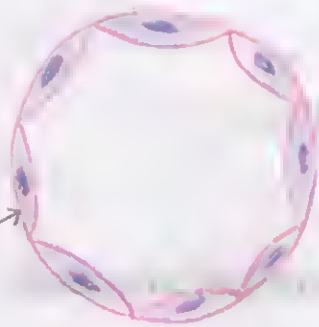
Non-keratinized



stratified squamous epithelium

Keratinized

myoepithelial  
Cells



Mucous acinus  
(Glandular epithelium)

secretory  
cell



myoepithelial  
cells

Glandular epithelium  
(serous acinus)





Neuro-epithelium.

Taste Bud



Hx & E



U-M-C



Sudan III

&  
HE



HistoCyte



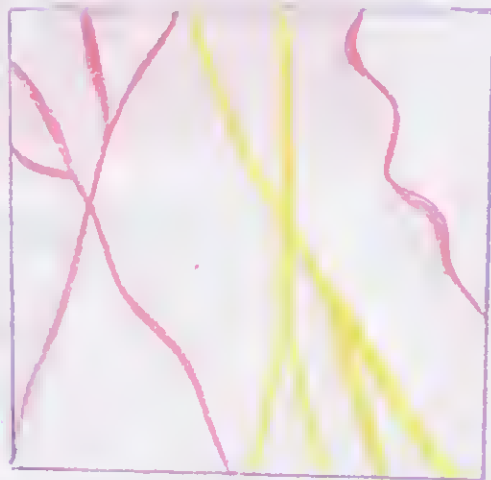
Fibro blast

wavy bundle

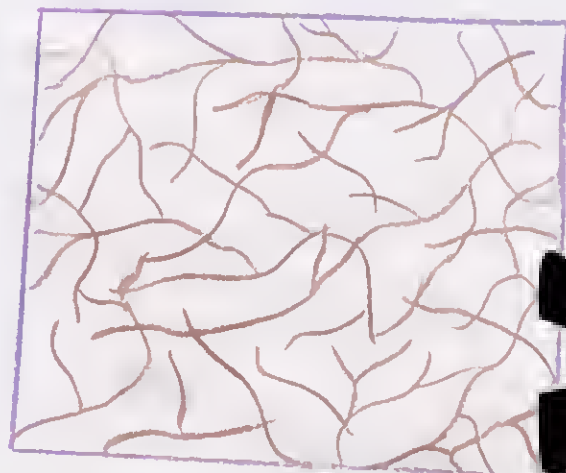


straightened bundle

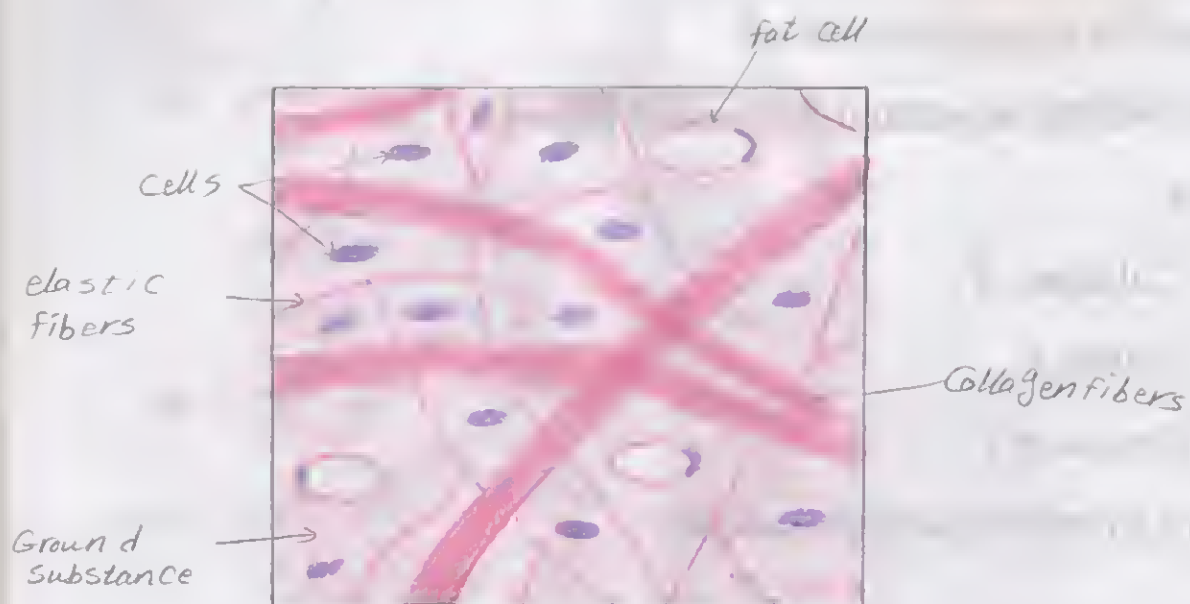
white collagenous fibres  
(H & E)



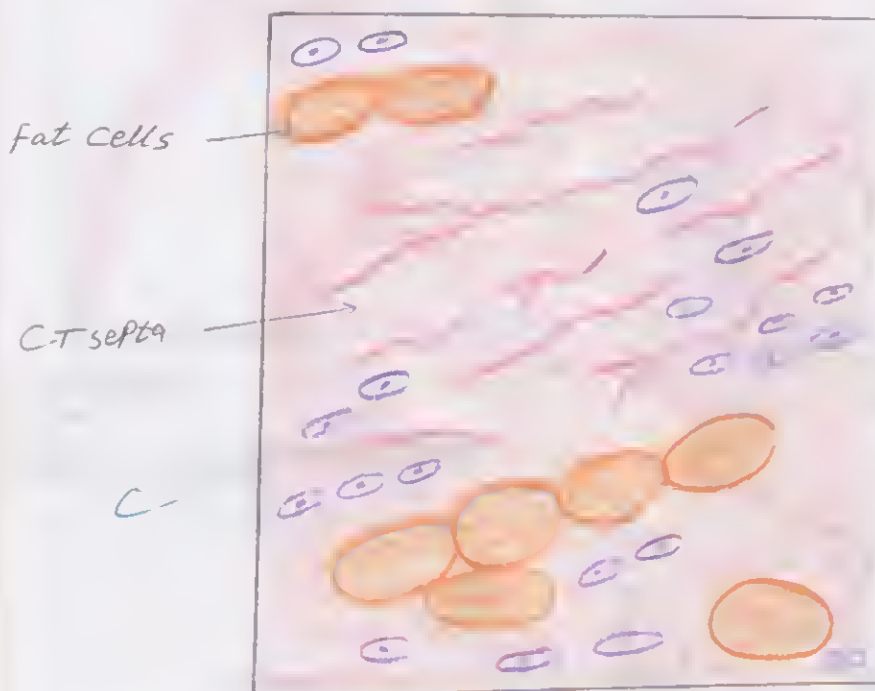
yellow elastic fibres  
(H & E)



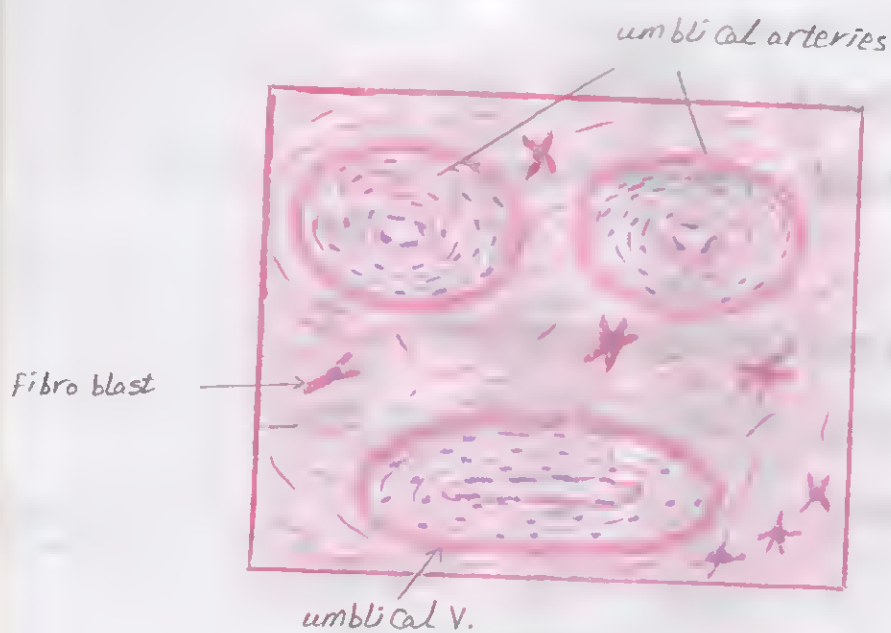
Reticular fibres  
(silver)



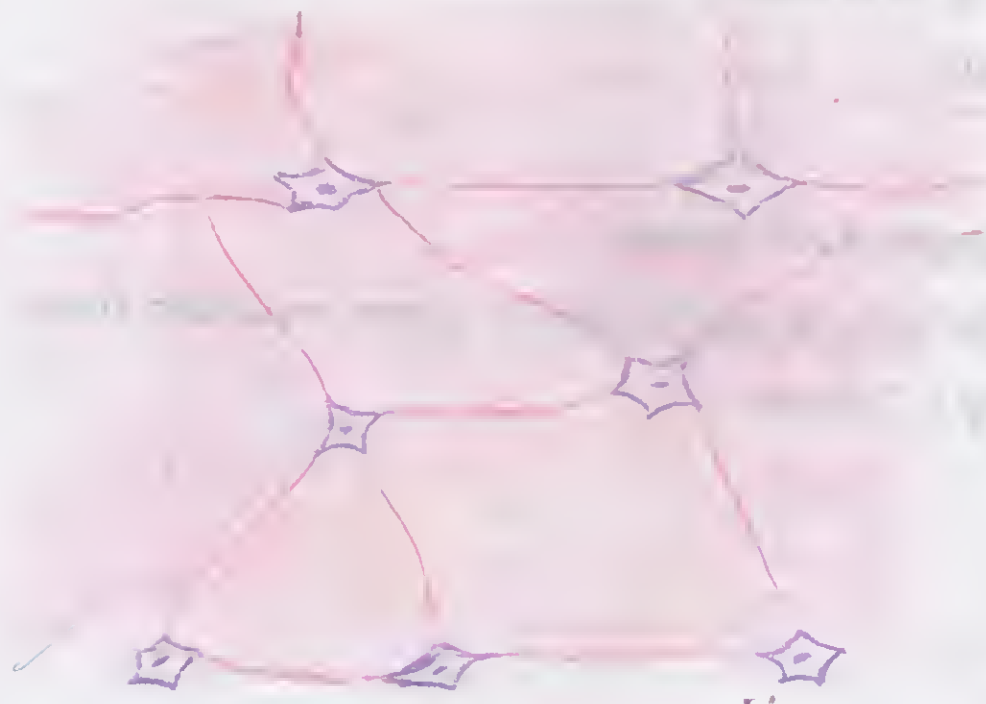
loose areolar C.T



Adipose C.T  
(Sudan III & HX & E)



Mucoid C.T. (umbilical cord)



Mucoid C.T.  
umbilical cord

### C) Muroid connective tissue (umbilical cord)

#### Notice:

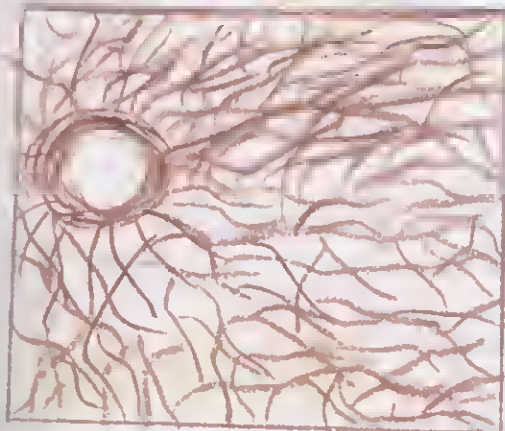
- Two umbilical arteries and one umbilical vein.
- Matrix is abundant slightly basophilic and containing few fine collagen fibres.
- The cells are mainly fibroblasts forming a network by their processes.

### D) Reticular connective tissue (silver stain)

(liver, spleen, lymph node)

#### Notice:

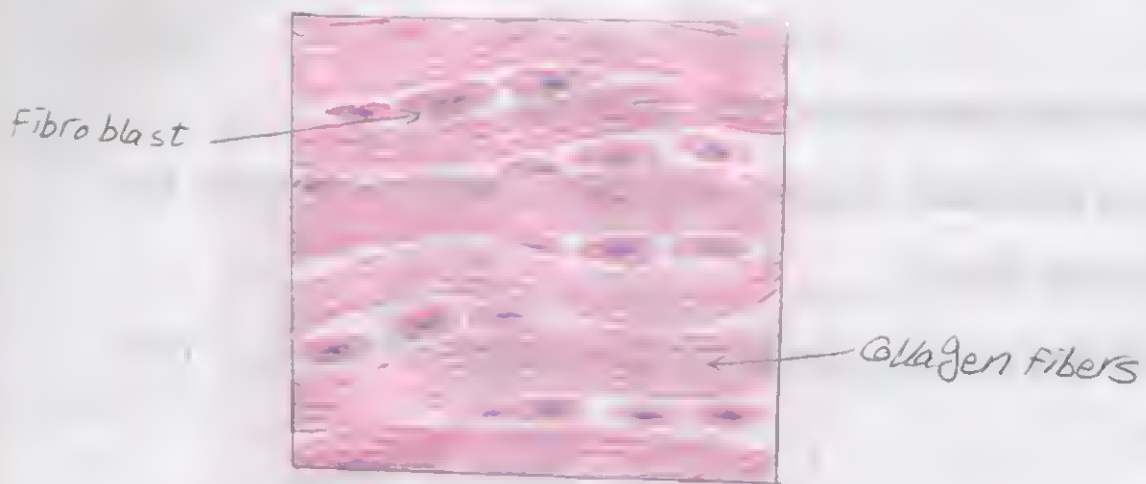
Reticular fibres of the stroma of the organ together with the reticular cells form a network (reticulum) which stain dark brown to black.



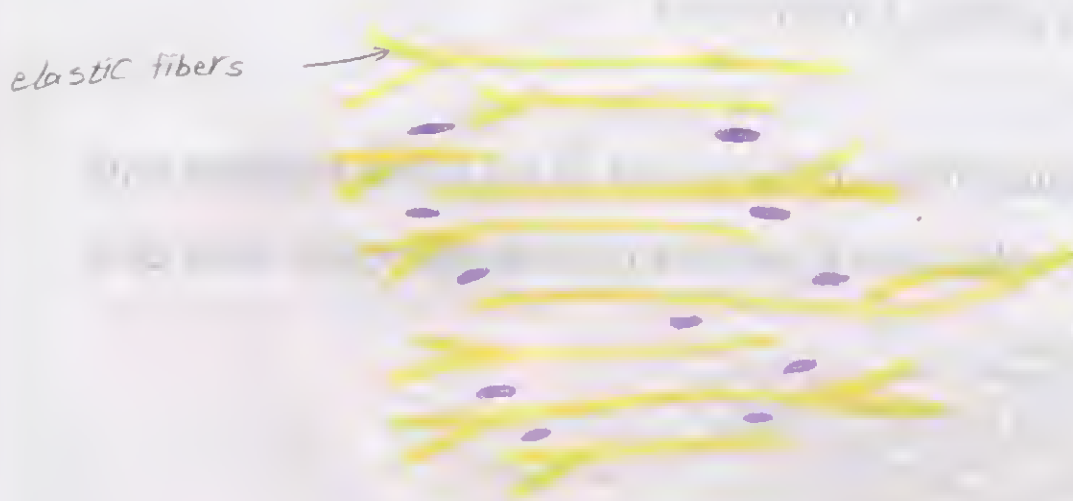
reticular C.T  
(Liver)

silver stain

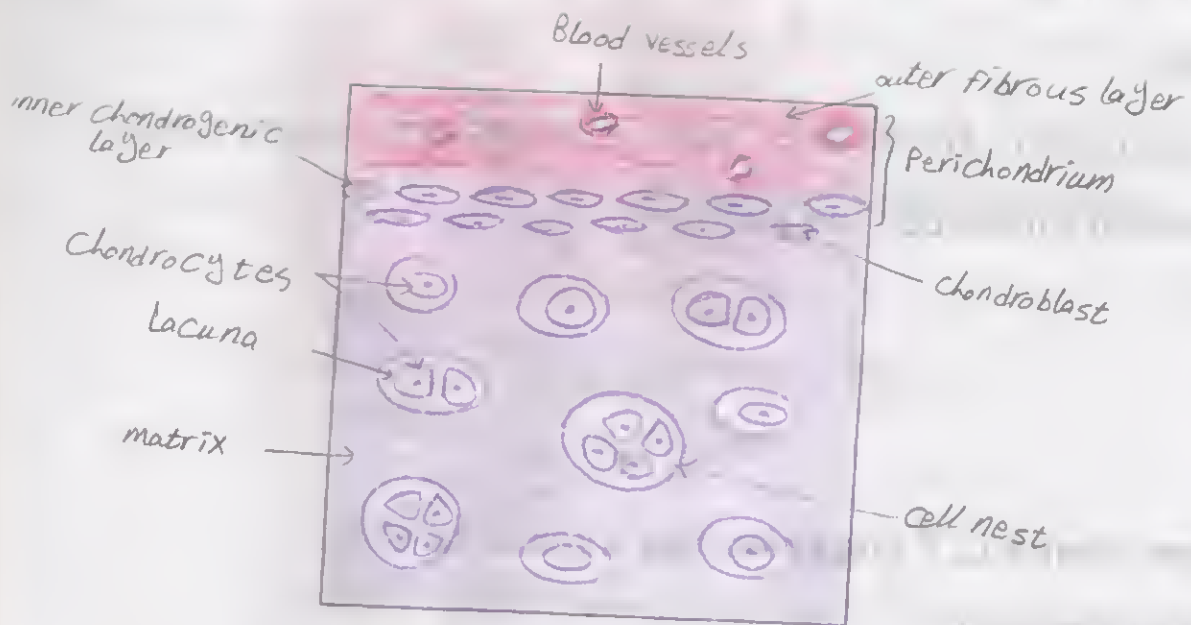




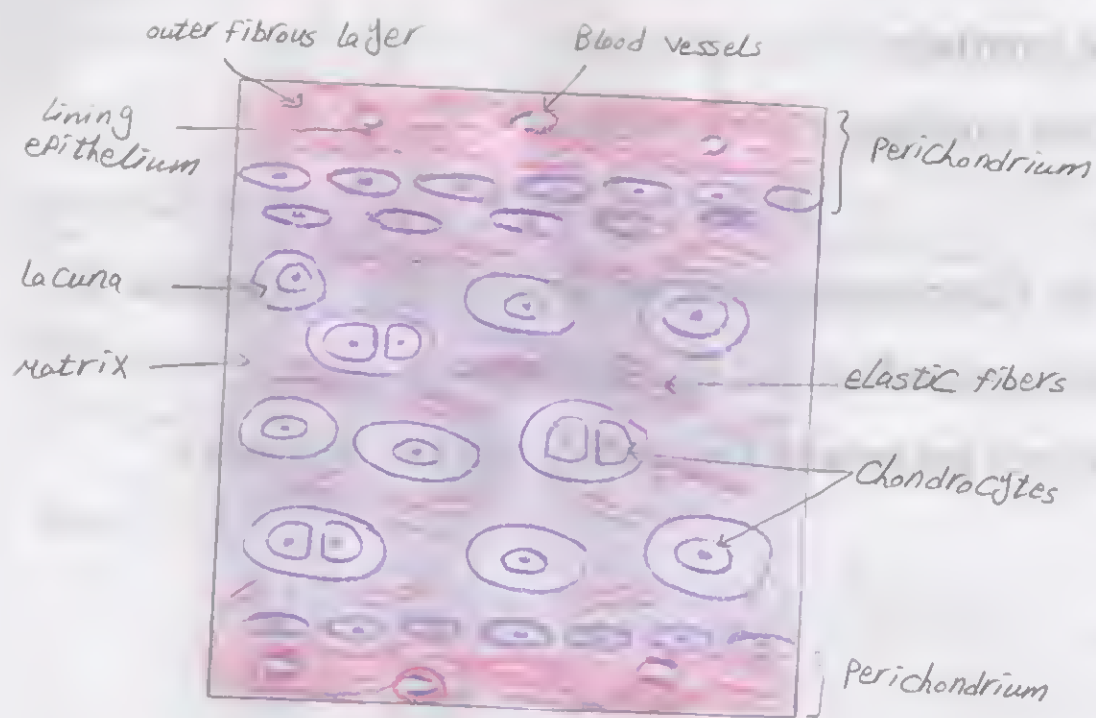
Dense regular C.T  
(Tendon)



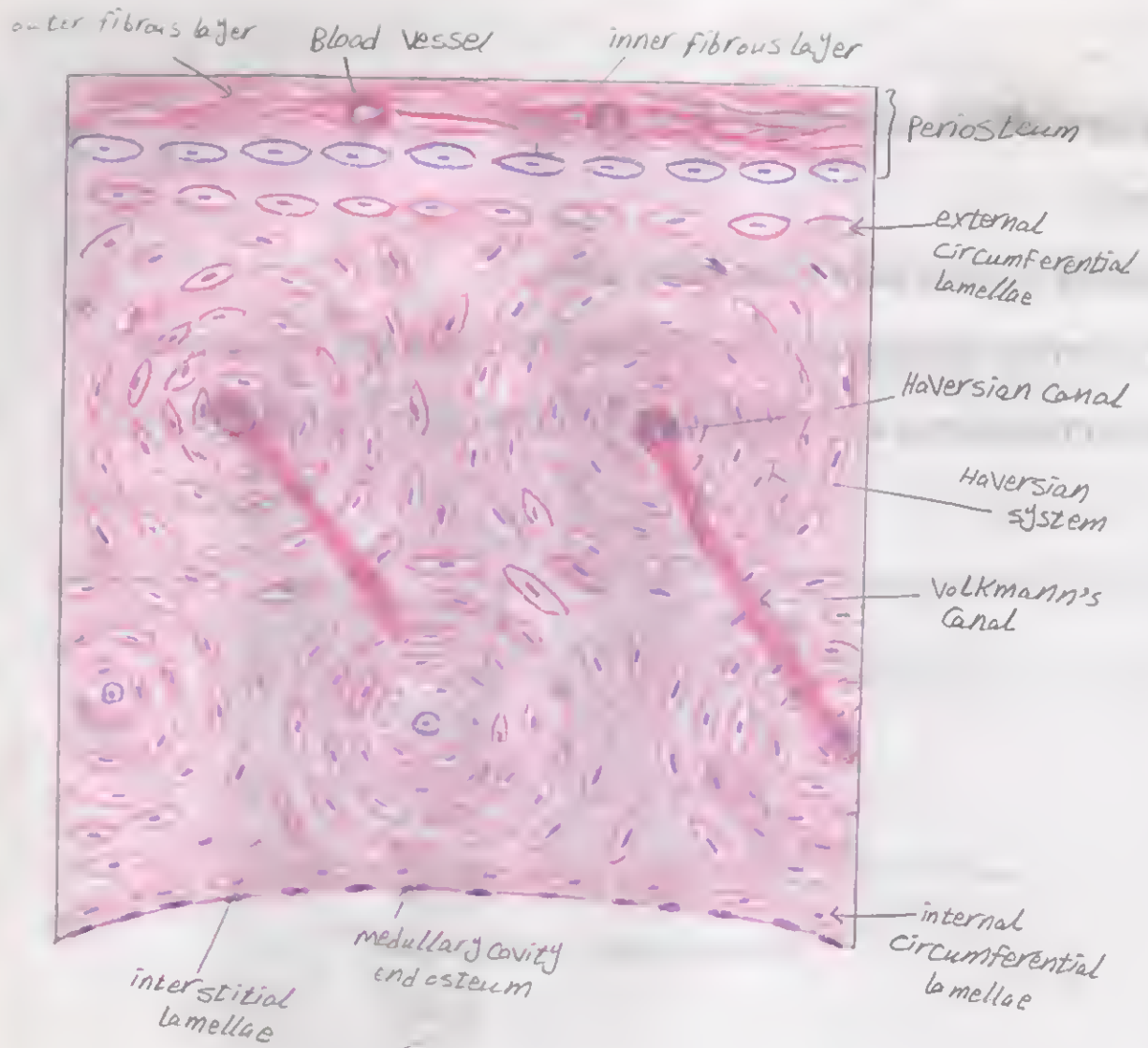
yellow elastic C.T  
Van Gieson's stain  
(ligamentum nuchae)



Hyaline cartilage  
(costal cartilage)



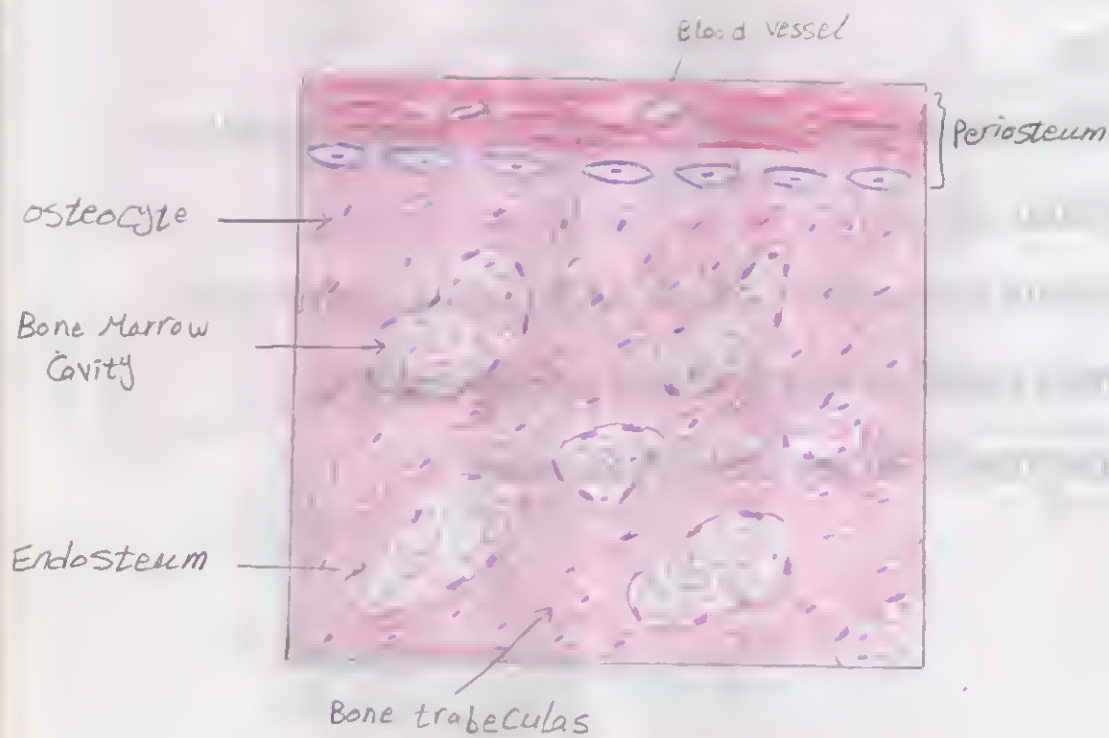
Yellow elastic cartilage  
(Ear Pinna)



De Calcified Compact bone

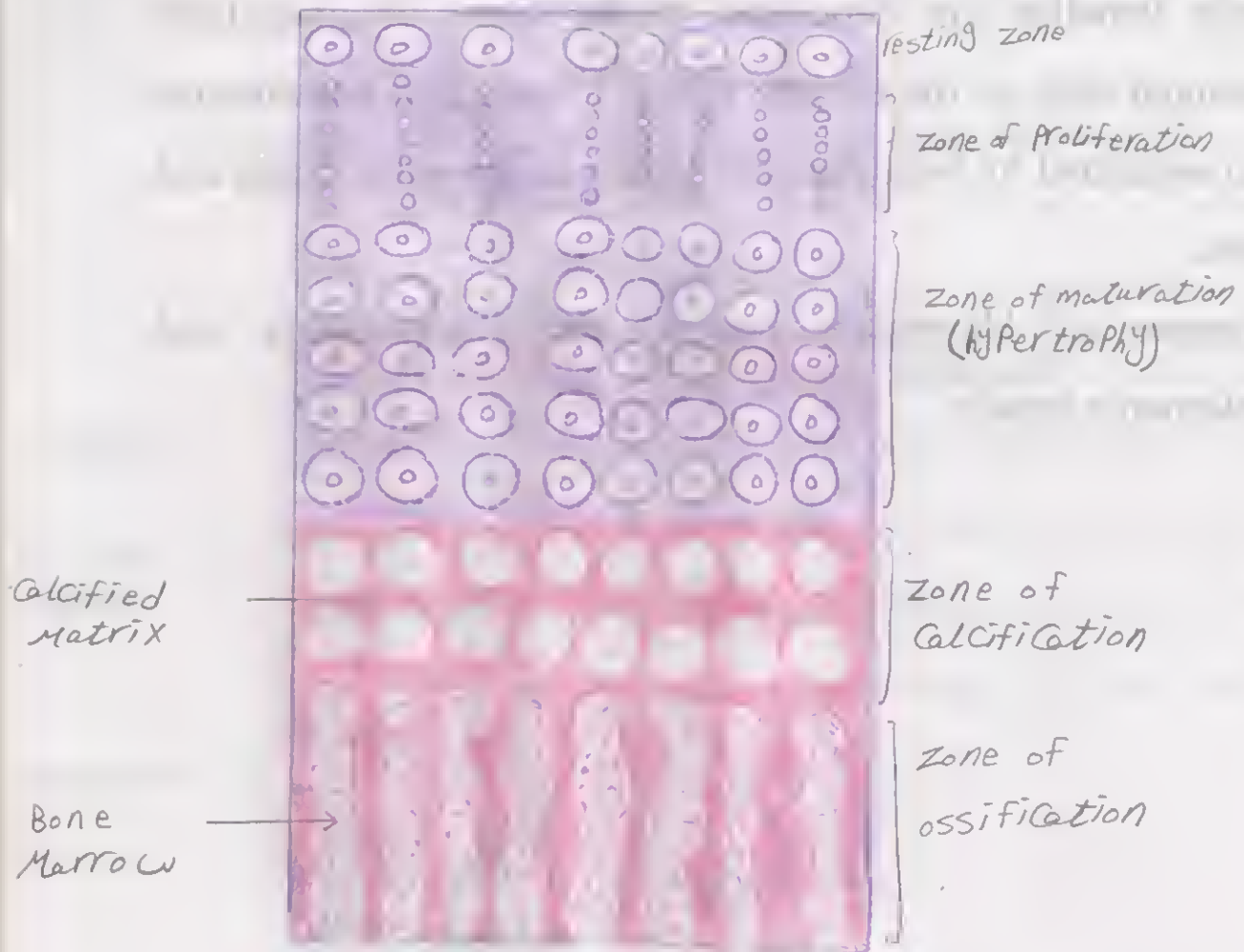


Ground Compact bone  
un stain



Cancellous (spongy) bone







RBCs



Neutrophil



Eosinophil



Basophil



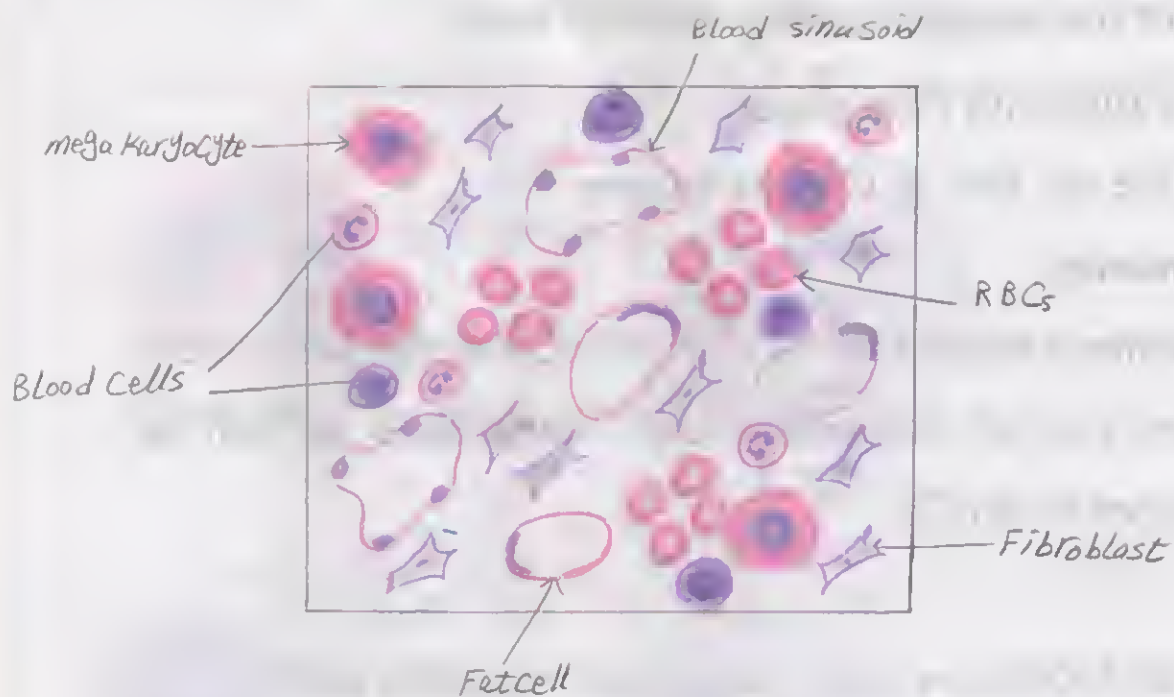
small Lymphocyte

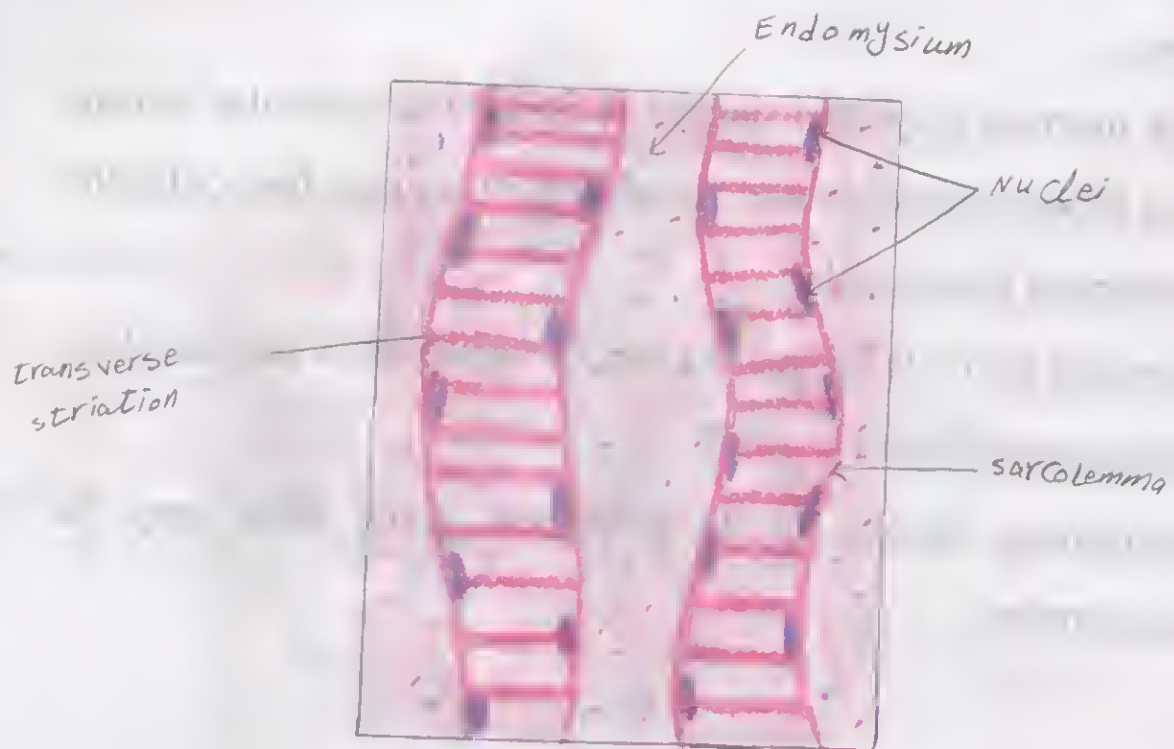


Large Lymphocyte

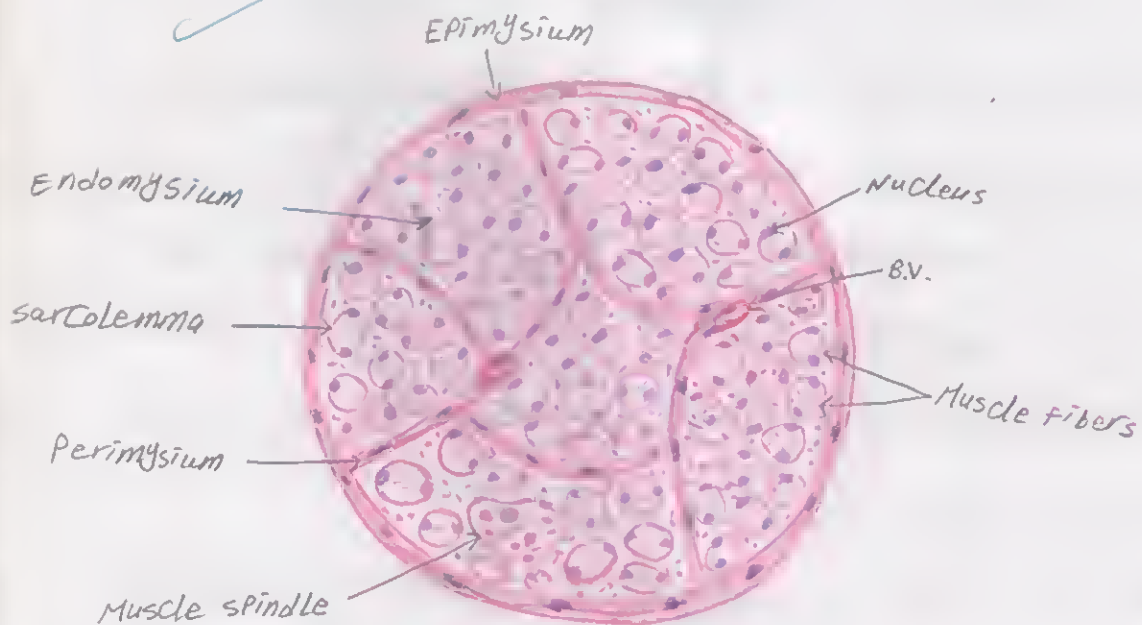


monocyte

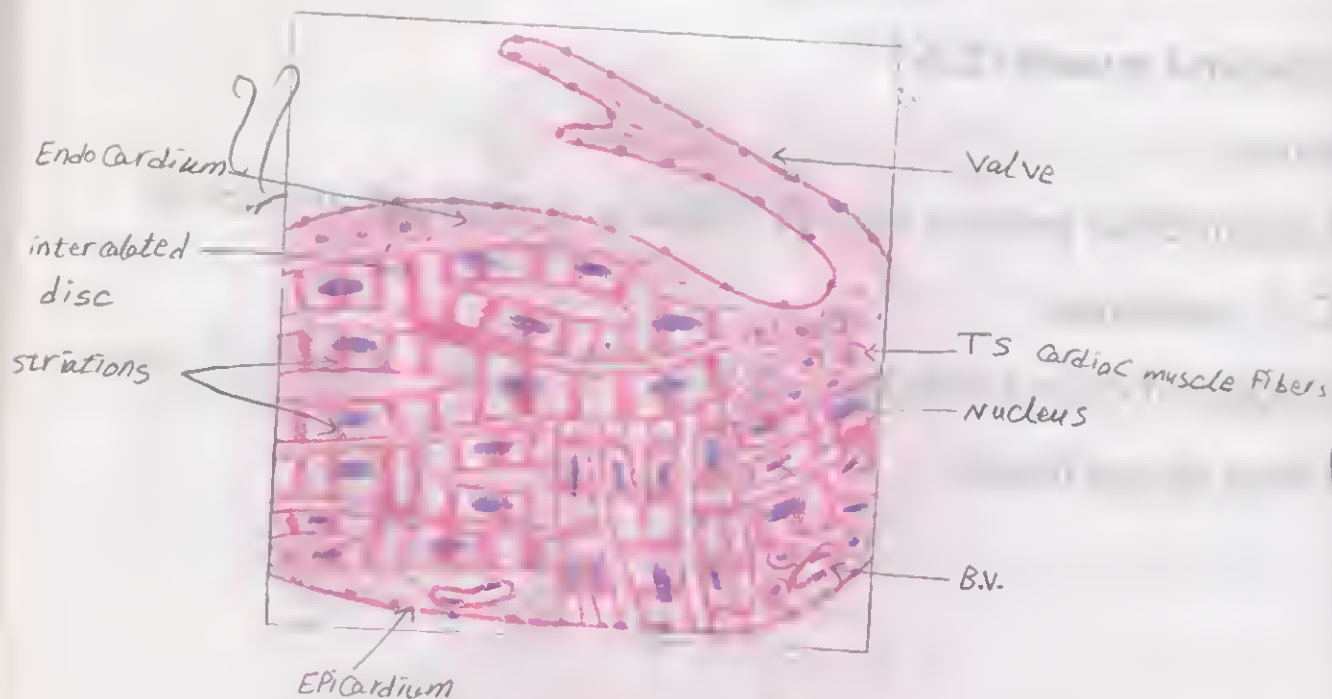




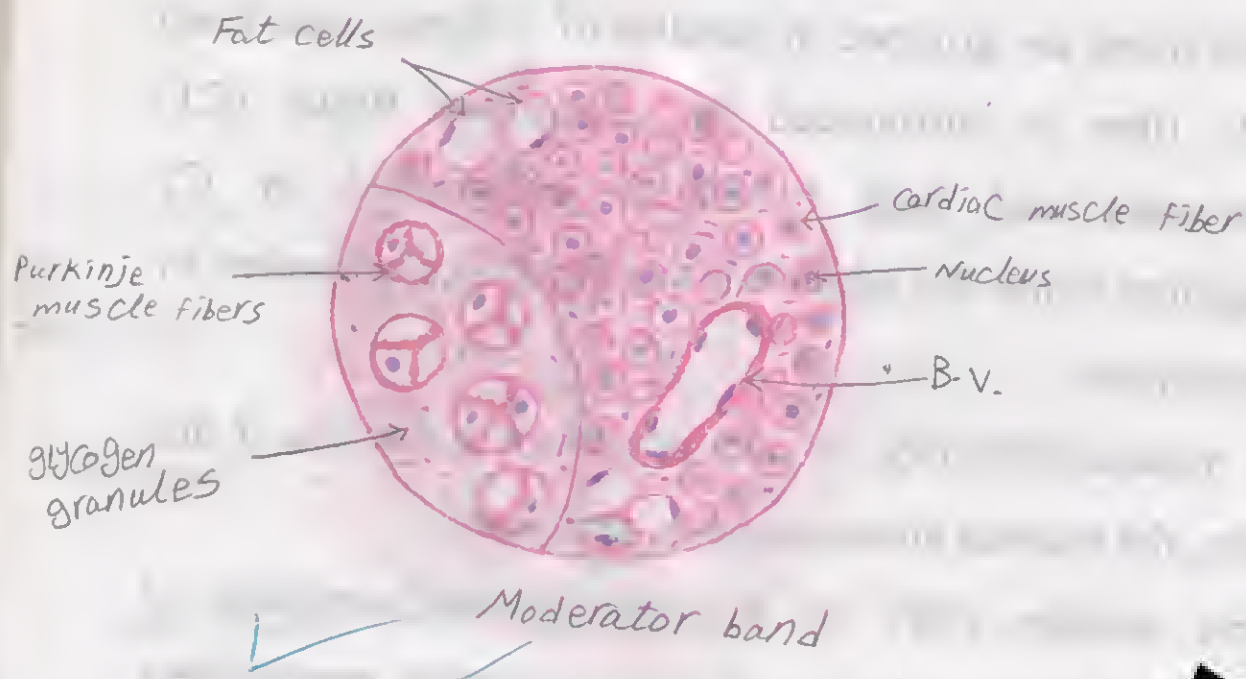
skeletal Muscle (L.S)



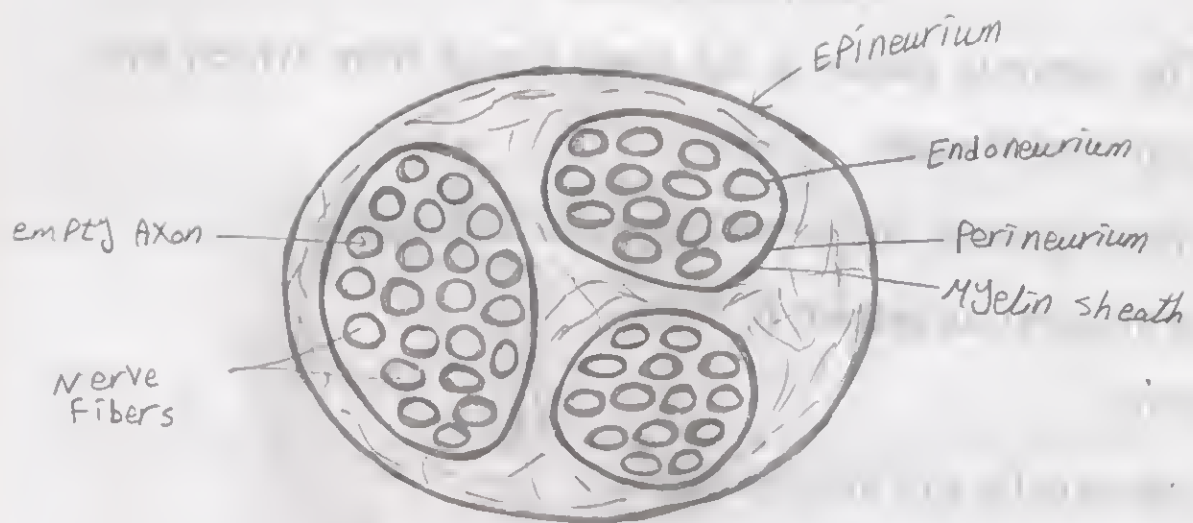
skeletal Muscle (T.S).



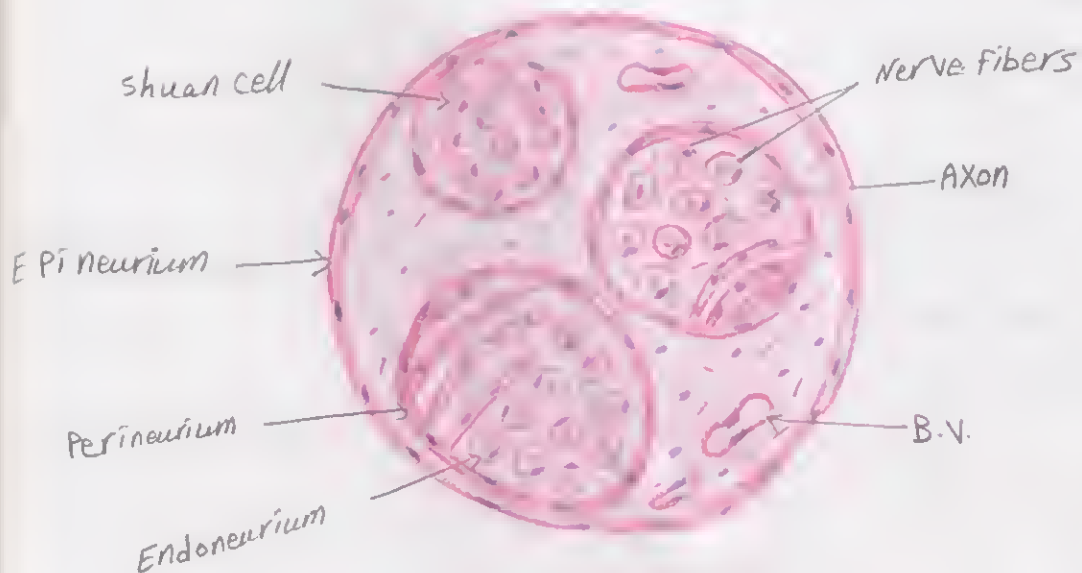
Cardiac muscle and Valve



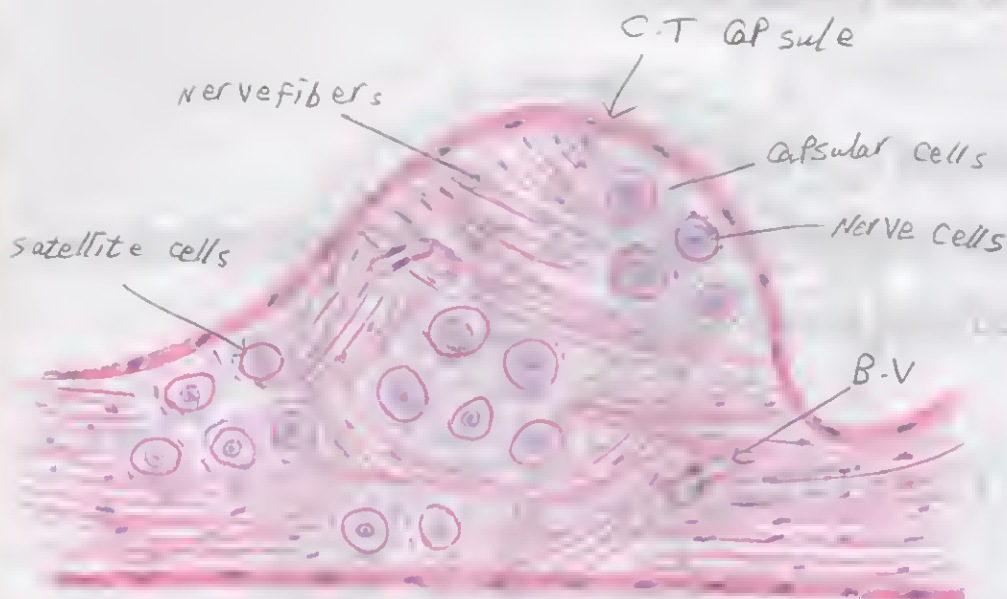




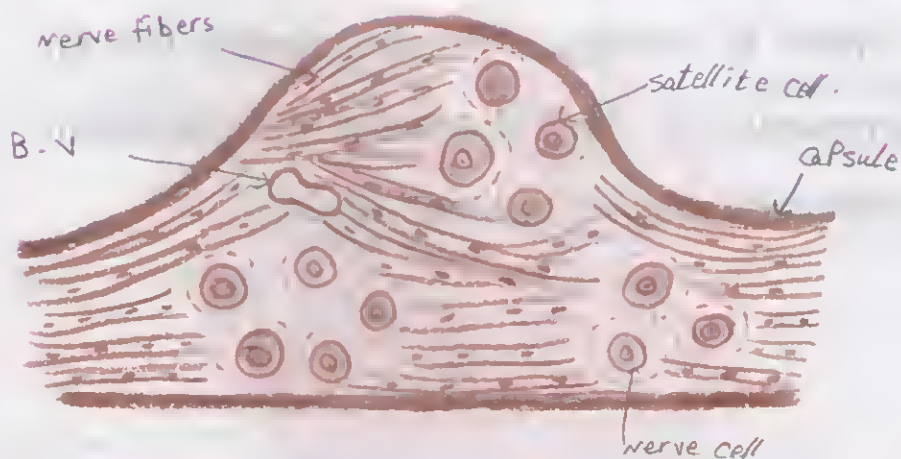
Nerve trunk  
(osmic acid)



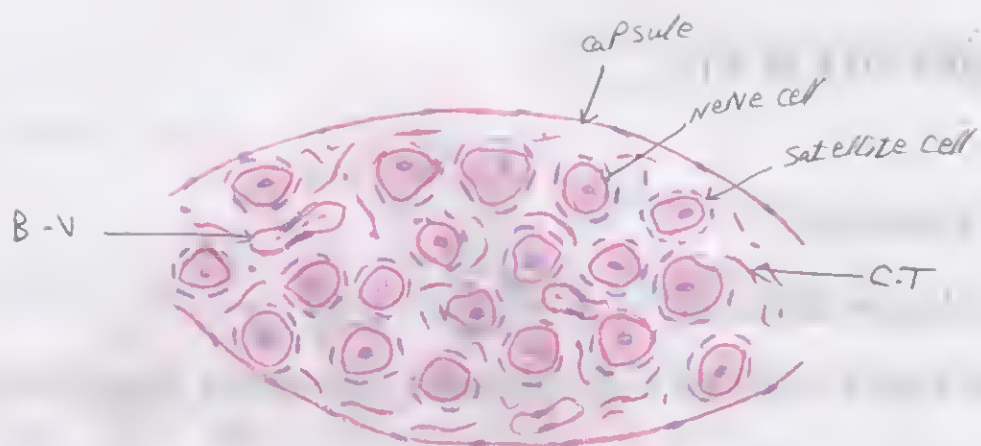
nerve trunk  
(Hx & E)



spinal ganglia (Hx & E)

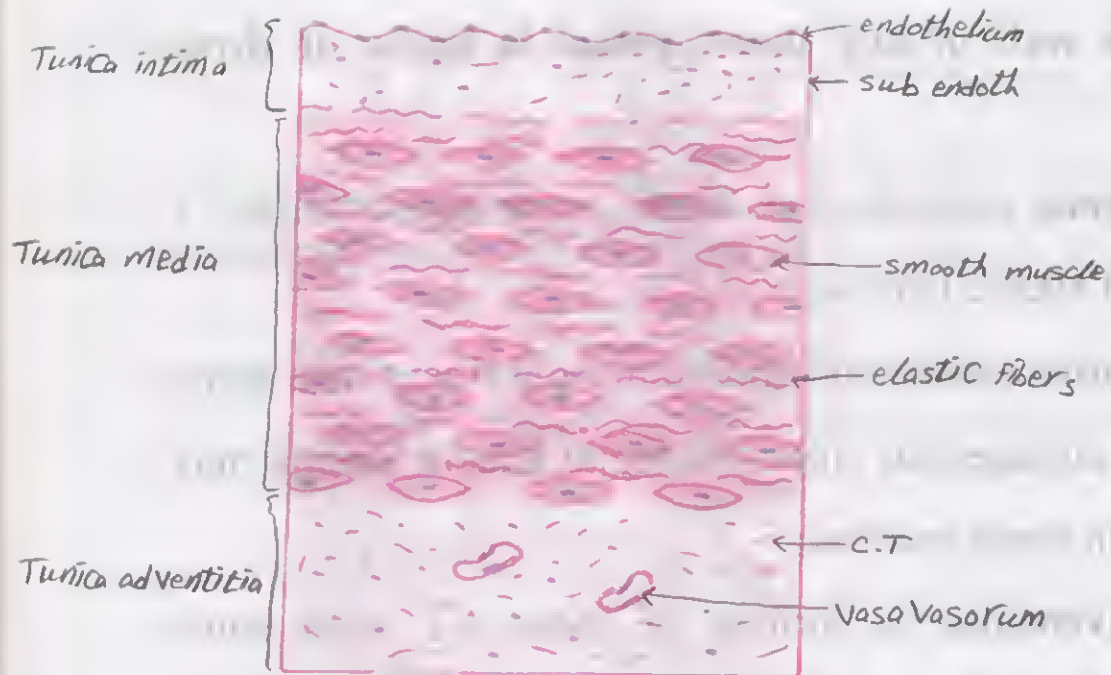


spinal ganglia  
(silver stain)

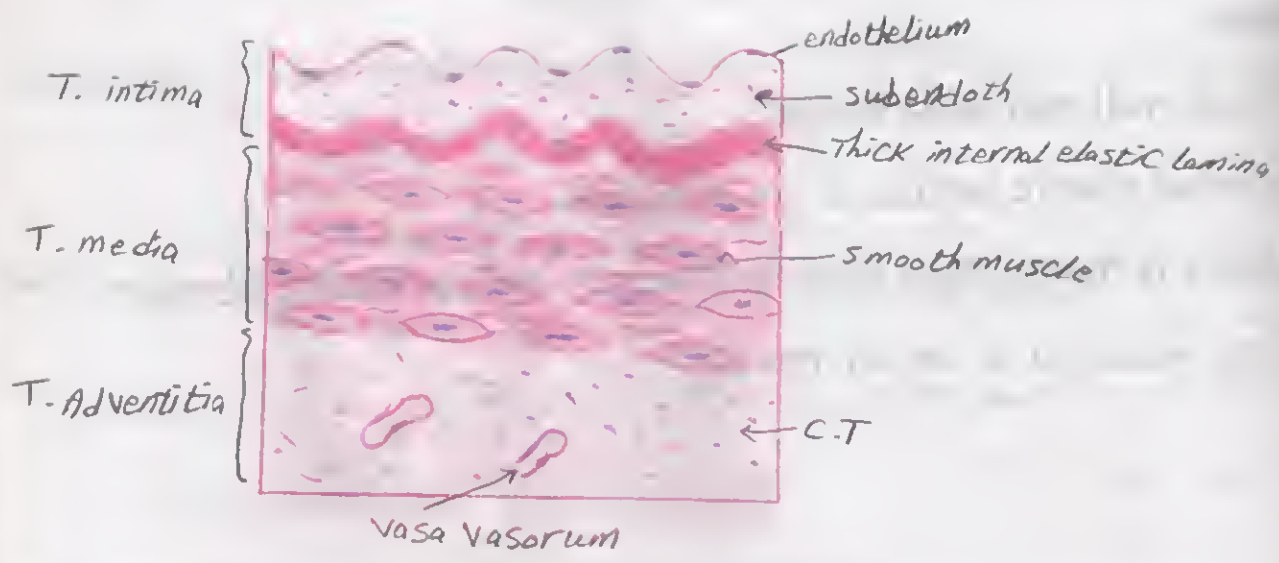


sympathetic ganglia



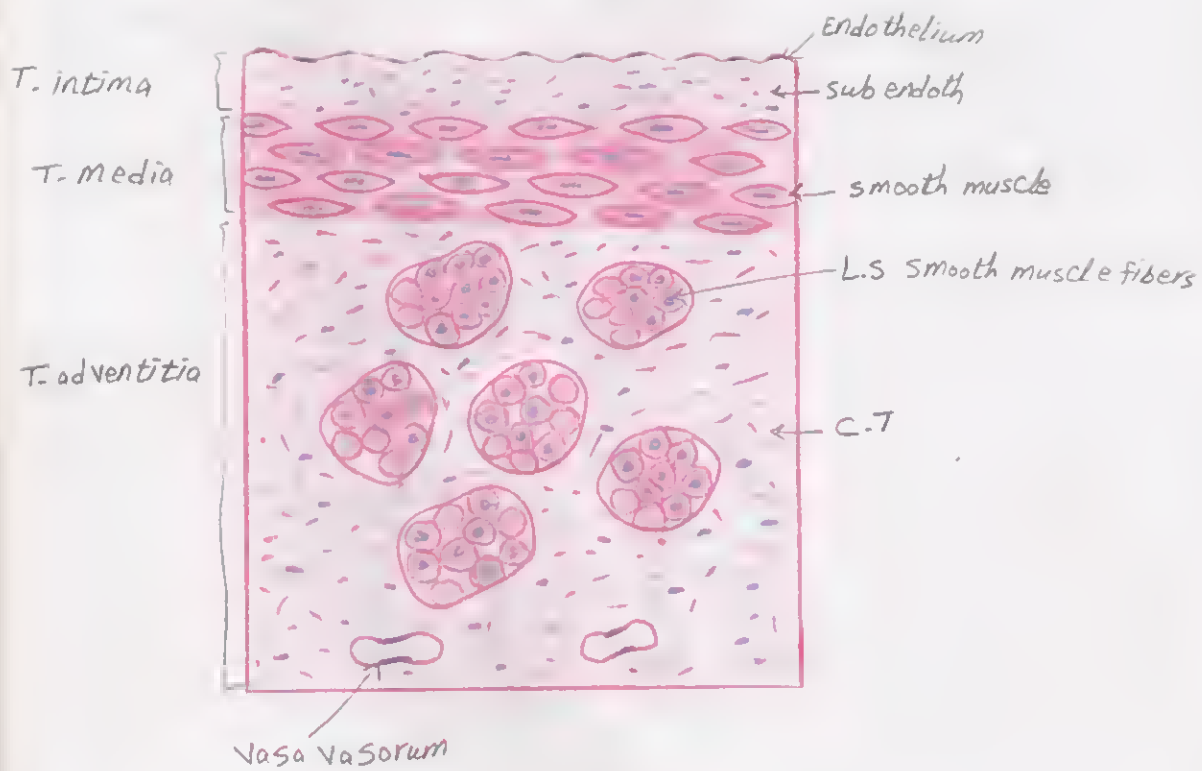


Aorta  
(large elastic artery)



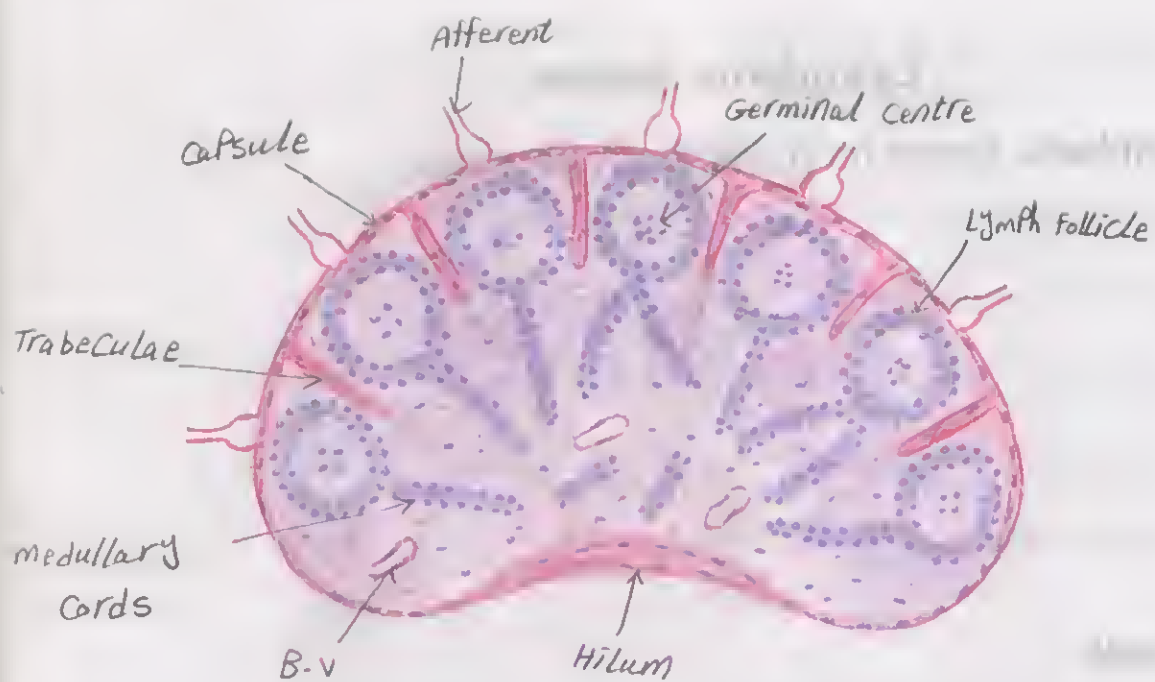
Basilar Artery



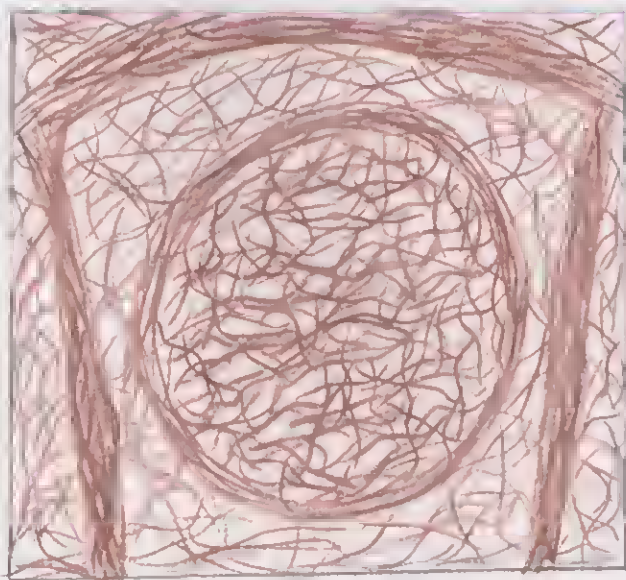


Inferior Vena Cava  
(large vein)

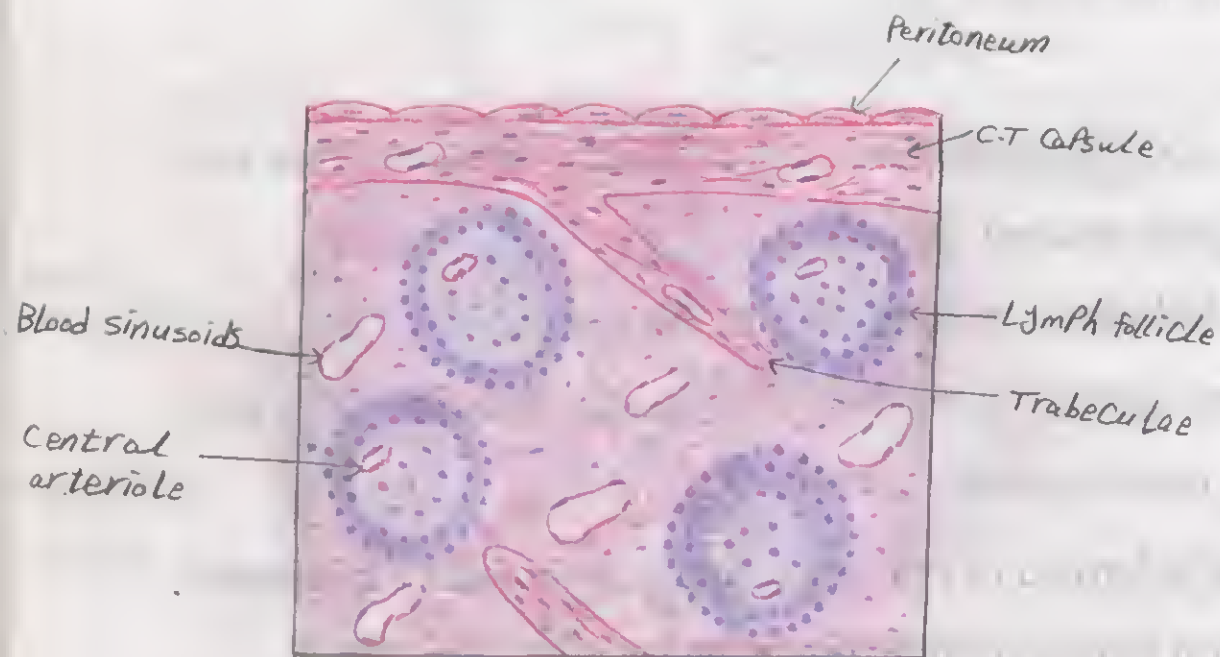




Lymph node (HX-E)

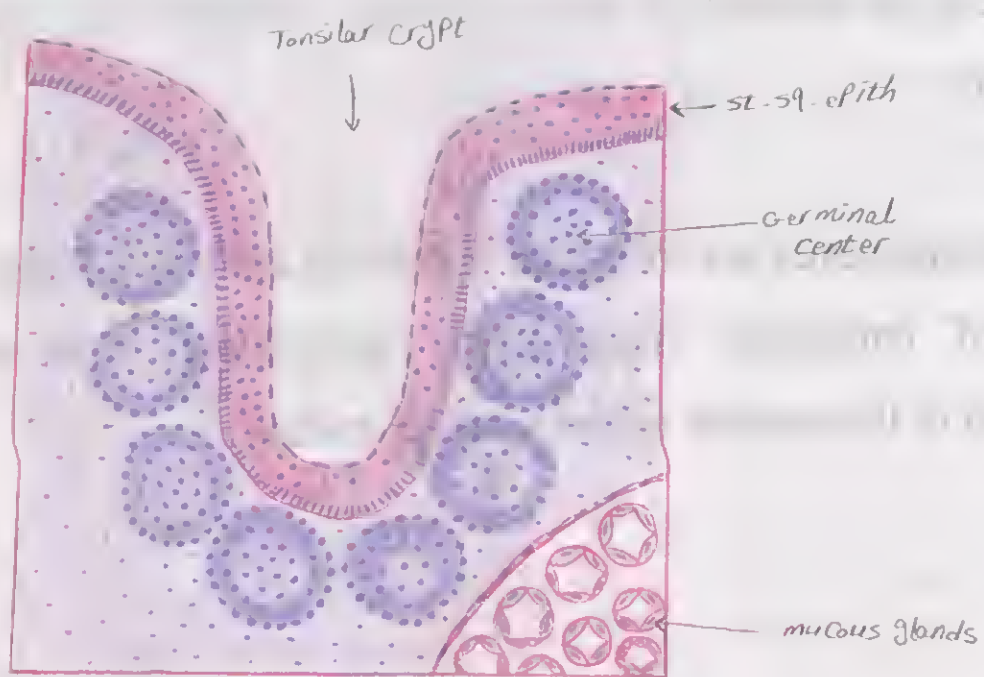


Lymph node (Silver)



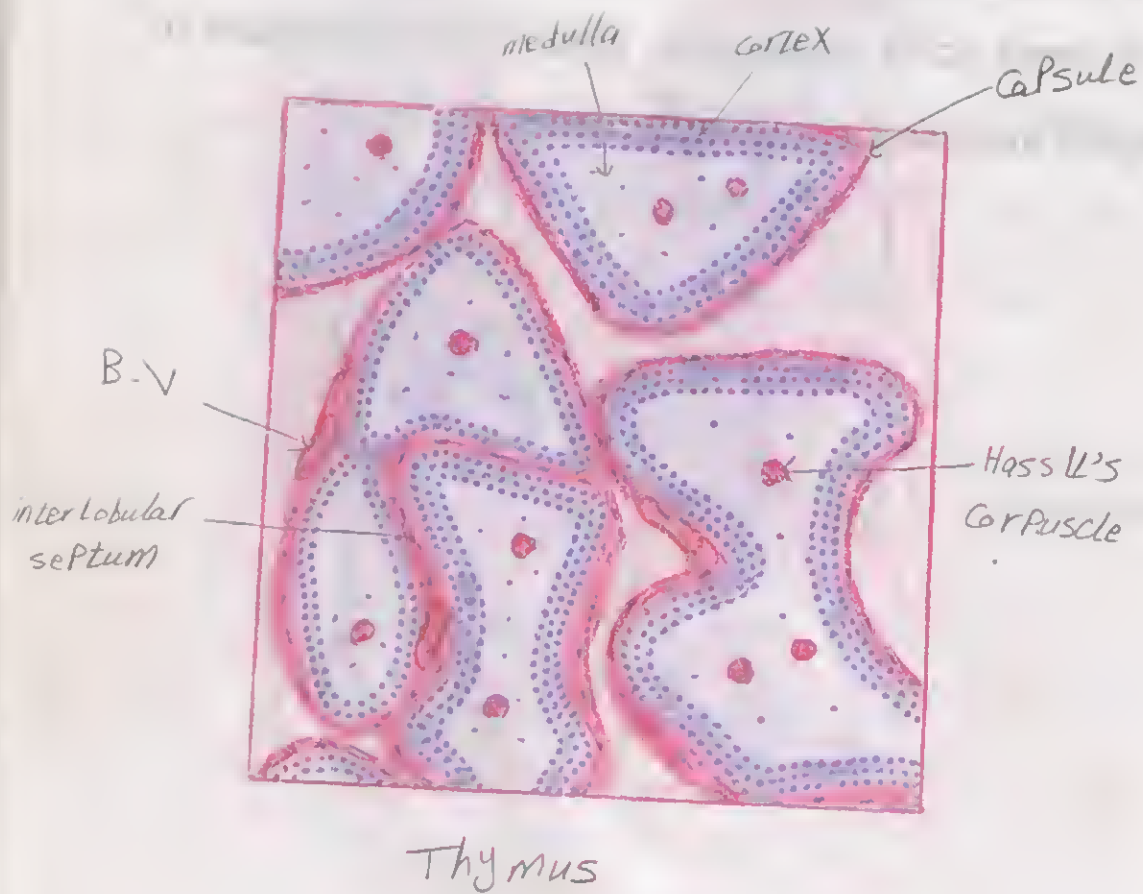
Spleen (HX - E)



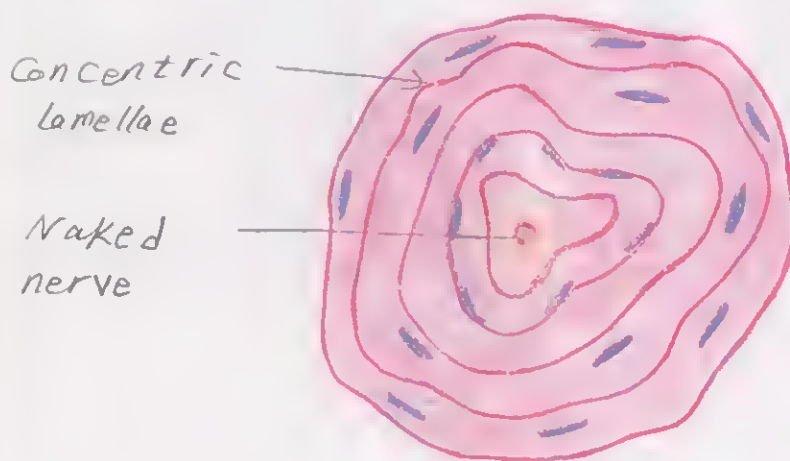
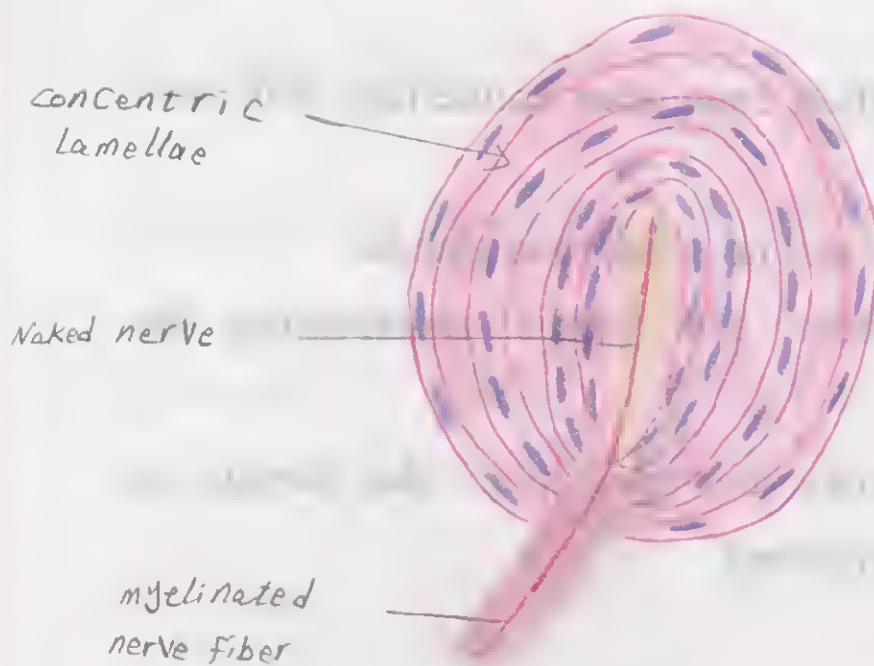


Tonsil





✓



T.S



تابعونا وحملتي

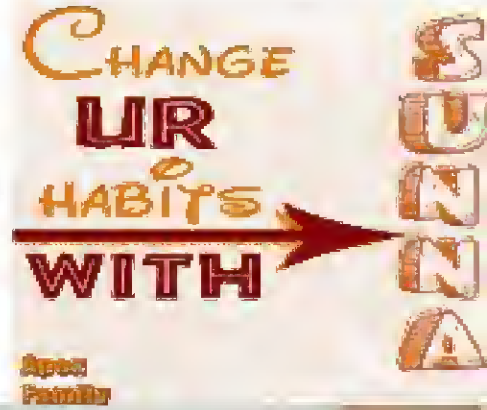
جنتي .. انت غايتي

ع استاند الحملة بقر الأسرة

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